

Ethnomedicinal importance and utilization of *Cissus quadrangularis* Linn. in Ranchi District

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ABSTRACT

Ethnomedicinal plants have a great significant role in the lives of people of rural and tribal areas. The area of research is documentation of ethnomedicinal knowledge for curing the various diseases in the rural areas of Ranchi by traditional healers. The present study was aimed at investigating the traditional utilization of ethnomedicinal plant *Cissus quadrangularis* Linn. in Ranchi District, Jharkhand. The study area is part of rich resources of ethnomedicinal knowledge of India. Since ancient times, ethnomedicines have been a good contribution to curing the diseases by local practitioners. In this study, stem and root parts of medicinal plant is being used for treatment of fracture of bones and bone related diseases. Questionnaires were mainly based on information concerning the plant parts used by local people and medicinal plant practitioner through personal interview.

Key Words - Documentation, ethnomedicinal, practitioner, questionnaire, traditional

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INTRODUCTION

Right from the very beginning of the human civilization the ethnomedicinal plants have been an integral part of human being. The traditional method to cure the various kinds of diseases is different from allopathic on various aspects, in term of belief and practices. *Cissus quadrangularis* Linn. is an indigenous medicinal plant of India and used by common man for promotion of fracture healing and well known as "Hadjod" in Hindi (Mishra *et al.*, 2010). Traditional medicine has been in practice from very long period as a primary health care centre throughout the world. Herbal medicine is commonly used to treat various human and livestock ailments. Traditional medicine of *Cissus quadrangularis* Linn. is basically used to heal broken bones, injured ligaments and tendons, thus its name Asthisamharaka, that which prevents the destruction of bones (Joseph *et al.*, 2013).

Traditional healers known by different names in different parts of the country are the primary players in the curative aspect of traditional medicine practice.

MATERIALS & METHODS

Study area:

Ranchi is the state capital of Jharkhand. This is situated in the centre of Chotanagpur plateau. Ranchi is one of the twenty-four Districts of Jharkhand state in Eastern India. The total area of Ranchi district is about 5,097 km² (1,968 sq. m). Ranchi on the globe is located at latitude 23°21'N and longitude 85°20'E.

Climate:

Ranchi has a humid subtropical climate and due to its environment, the forests around the city, it is known for its pleasant climate.

Methodology:

The plant *Cissus quadrangularis* Linn. was collected from Ranchi area. Detailed survey made in Ranchi District of Jharkhand and information regarding the use of medicine has been documented. Ethnomedicinal report was being prepared on the basis of individual interview with the local medicine man in the remote areas. Ethnobotany provides several approaches in plant researches, the traditional resources which help in aspects of medicinal plant-research. Botanical description of the plant and morphological characters are very helpful for identification. The identified whole plant parts of *Cissus quadrangularis* Linn. shown in (Figure -1). As whole plant parts were used by the local people, medicinal man and the medicinal plant practitioner, the maximum parts of the plant were utilized such as stem, leaves and roots than the flower, fruit and seed. It was done by Ethnomedicinal work through personal interview and questionnaire (Figure-2).

Scientific observation:-

Kingdom	-	Plantae
Division	-	Magnoliophyta
Class	-	Magnoliopsida
Order	-	Vitales
Family	-	Vitaceae
Genus	-	<i>Cissus</i>
Species	-	<i>C. quadrangularis</i>

Morphological characters of *Cissus quadrangularis* Linn:

Plant

Succulent plant, height ranges from 2-4 cm in length, internodes 3-18 cm long and 1.5-2cm thick.

Leaves

Green leaves simple, 2-6 cm long, leaf tendril, serrate leaf, reniform, glabrous, ovate, rounded, denticulate, stipules lobes and cuneate at the base.

Flower (calyx & style persistent)

Short peduncle cymes with umbellate small flower, bisexual 2.5 mm long white color.

Calyx

Cup shaped 2 mm long ambiguous 4-lobed.

Petals

Tetramerous, ovate-oblong, short, stout and fleshy.

Stem

Quadrangular, succulent, internodes 3-10 cm long and width 1-2 cm thick.

Seed

Globular barriers are red in color when ripe.

Fruit

Large succulent drupe.

Flowering and Fruiting time

June-December.

The plant *Cissus quadrangularis* Linn. is a perennial plant which included in the Vitaceae family.



Ethnomedicinal studies: -

For ethnomedicinal study the methodology was include the personal interview with the local knowledgeable persons, medicinal plant practitioners, various ethnic groups, patients cured. For the purpose standard questioners were prepared for collection of first-hand information. Herbal practitioners were interviewed regularly and the plants in question were spotted or recognized with their help. The entire plant material was collected from the study area and herbarium sheet has been made (Jain and Rao, 1978). Plants were identified in the laboratory by consulting necessary literature and floras (Haines, 1921; Saxena and Brahmam, 1995) and also matched with the specimens kept in University Herbarium.

Format of Questionnaire

- 1) Name of Person-
- 2) Address or Village-
- 3) Sex-
- 4) Age-
- 5) Profession-
- 6) Community-
- 7) Collection no.-
- 8) Vernacular name-
- 9) Used as-
- 10) Part of plant used-
- 11) Duration of plant part used-
- 12) Preparation of medicine-
- 13) Any other ingredients used for preparation of medicine-
- 14) Mode of administration-
 - a) Eat
 - b) Decoction
 - c) Ointment
 - d) Surface
 - e) Other
 - f) Any other comments

Signature



Figure-2: Ethnomedicinal work; Interview with herbal healers.

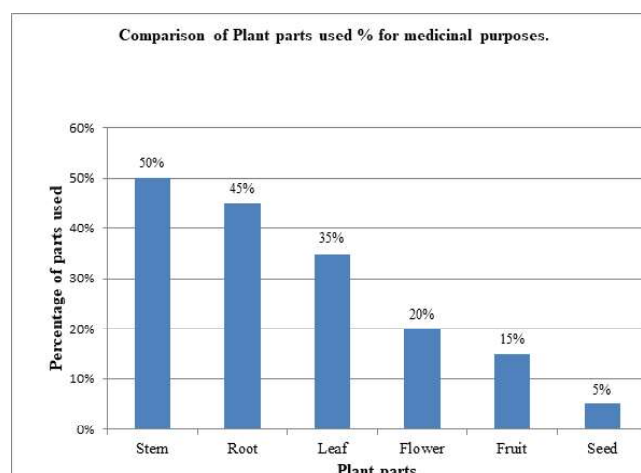
RESULTS AND DISCUSSION

The survey of ethnomedicinal plant *Cissus quadrangularis* Linn. was conducted in Ranchi District of Jharkhand. It is a site of important medicinal plants diversity due to its great variation in climate and topography. The information gathered from local healers' practitioners were recorded (Table-1). Such valuable information about *Cissus quadrangularis* Linn. were taken through interaction with local people and herbal practitioner. The Documentation of the plants was felt necessary to conserve the plants and to locate the endemic species (Gagdgil, 2003). It will also help the people to become inventor and claimant (Gollin, 2002). *Cissus quadrangularis* Linn. is being used in different diseases, especially healing of bones, Osteoporosis and other bone related problems. The paste of fresh stem was applied externally in broken hand for observing healing activity of bones (Fig.3). The plant was identified by standard monographs. For this survey study recorded with respect to their botanical name, local name, family, parts used, active principal and medicinal uses. This plant is a perennial herb. The leaves are buff colored with greenish. The *Cissus quadrangularis* plant grows in a warm tropical environmental condition. The plant

is cultivated from the stem during the month of June to July (Sen & Dash, 2012). Fresh stems are thick, fleshy, quadrangular with acutely 4 winged internodes (Ghouse, 2015). Flowers are disposed in terminal panicles, small and polygamous. Calyx is short, entire and deciduous. Petals are imbricate in shape (Buddhadev & Buddhadev S., 2014).

Monographs

Hindi Names	–	Hadjod.
English Name	–	Edible Stemmed Vine.
Bengali Name	–	Hadjod, Harbhanga.
Sanskrit name	–	Asthisamharaka



Plant parts used:- The whole plant used specially leaves, roots and stem.



A



B

Figure-3: A, B - Showing the application of paste of fresh stem used in broken hand. The paste of *Cissus quadrangularis* Linn. was used externally. It was used in the treatment of bone healing property.

Table-1: Showing the ethnomedicinal surveys and interview taken of some Vaidyas and herbal healers of Ranchi District.

SL. No.	Name of the local healers/details	Vernacular names of the plant	Parts of the plant used	Mode of use	Diseases
1.	Narayan Lohra, Age- 50 Vill- Sitadih Block- Angara P.O- Barwadag P.S- Sikidiri Dist- Ranchi	Hadjod	Stem	Paste of the fresh stem used externally for applied into broken parts of the body.	Fracture of bone healing
2.	Mahadev Khalkho Age- 80 Vill- Makhmandro Block- Ratu P.O- Katulahna P.S- Ratu Dist- Ranchi	Hadjor	Stem	Paste of fresh stem and dried powder of stem used to promoting in bone healings.	Bone healing activity, bone related problems.
3.	Anil Kumar Pathak Age- 65 Vill- Lapra P.O-Maccluskieganj P.S-Maccluskieganj Dist- Ranchi	Hadjod	Stem, root	Paste used, oil used for massage.	Injury, Bone fracture, joints pain
4.	Bimal Ekka Age- 63 Vill- Dashmile Block- Satrangi P.O- Ramkrishna Sanatorium P.S- Satrangi Dist- Ranchi	Hadkankkan	Stem, leaf	Made Pakora and used 5-6 time or one week.	Esophagus disease, Gout
5.	Sohray Mahto Age- 70 Vill- Jobla, Rohandi Block- Ormanjhi P.O- Bakshidih P.S- Sikidiri Dist- Ranchi	Hadkankni	Stem, root	Paste applied on bone fracture.	Bone fracture

There was a remarkable uniformity in the identification and use of the plant recorded in the survey. The results of the study are consistent with the use of ethnomedicinal plant *Cissus quadrangularis* Linn. by local people. The herbal medicinal plants that are frequently used by the local people have always been in the top ranks in ethnobotanical indices. In modern era diseases have been evolved which are still not diagnosed for curing therefore the consumption of ethnomedicine has been in practice by the herbal healers. There has also been misuse and overdose due to lack of proper knowledge of quantity and frequency to take medicine. The genus 'Cissus' is one of such group of plants found in all continents which is largely and greatly used to cure various kinds of diseases (Fernandes & Banu, 2012). The ethnobotany studies to cure various diseases and ethnomedicinal uses of Rheumatism have *Cissus quadrangularis* Linn. showing active principle of bone healing properties in West Bengal (Chakraborty Arpita and Kumar, 2019, 2021).

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